

## CHAPTER 26

# ELECTRONIC SECURITY SYSTEMS

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### 26-1. Minimum maintenance activities for electronic security systems

The table located at the end of this chapter indicates items that must be performed to maintain systems and equipment at a minimum level of operational readiness. The listed minimum action items should be supplemented by manufacturer-recommended maintenance activities and procedures for specific pieces of equipment. Maintenance actions included in this chapter are summarized in table 26-1.

### 26-2. General maintenance procedures for electronic security systems

Preventive maintenance is a periodic checking and testing of equipment. The following table indicates the minimum preventive maintenance tasks and the frequency of these tasks. Inspection frequencies may be increased as required based on observations and experience. Because of the sophisticated electronics utilized in electronic security systems (ESS), specially trained personnel may be required to perform certain preventive maintenance tasks. Factory representatives or service companies are available should in-house personnel not be comfortable with performing these tasks.

- a. Review maintenance records.* Personnel should review past maintenance records to find repair patterns. These records may point to certain components that should be closely inspected during performance of preventive maintenance.
- b. Review operator records.* Review operator records looking for trouble entries.
- c. Equipment inspection.* Perform a general inspection of the ESS as described below.
  - (1) Inspect to ensure that voltage warning signs exist on equipment like power supplies.
  - (2) Ensure that security system warning signs, if installed, are in their proper location.
  - (3) Intrusion detection system equipment may be labeled "security equipment not to be tampered with" to warn maintenance personnel. Make sure these labels are installed appropriately.
  - (4) Inspect enclosures for damage, unauthorized openings, and corrosion of metallic objects. Repair and paint as required.
  - (5) Inspect air passages and remove any blockage.
  - (6) Inspect, investigate, and solve conditions for unusual odors.
  - (7) Inspect locking devices. Repair as required.
  - (8) As equipment is operated and tested, listen, investigate, and solve conditions for unusual noises.

- (9) Inspect equipment mounting for proper installation.
  - (10) Inspect for loose wiring and components.
  - (11) Inspect electrical connections for discoloration or corrosion. Repair as required.
  - (12) Inspect electrical insulation for discoloration and degradation. Repair as required.
  - (13) Inspect equipment grounding components such as conductors and connections. Repair as required.
- d. *Clean equipment.* Remove debris, dirt, and other foreign deposits from all components and areas of non-encapsulated equipment such as ventilated control panels, etc.
- e. *Tighten electrical connections.* All electrical connections should be torqued to the proper design value.
- f. *Perform detection operational tests.* Operational tests are performed periodically to prove correct system operation but do not involve verification of equipment operating specifications such as the exact distance a protected door is opened before alarming. Verification of system or equipment specifications is conducted during performance testing.
- (1) Open protected doors.
  - (2) Walk in protected rooms.
  - (3) Test metal detectors by passing metal through the detection area.
  - (4) Prove operation of fence disturbance sensors by shaking the fence.
  - (5) Walk in areas protected by invisible barrier detectors.
- g. *Perform detection performance tests.* Performance tests vary from operational tests by verifying that equipment is in conformance with equipment or system specifications. These tests will usually require measuring devices or other calibrated instruments.
- (1) Check for correct alarm activation when protected doors are opened a specified distance. Make adjustments as required.
  - (2) Test motion sensors by walking in strategic locations, with arms folded across chest to eliminate the Doppler effect of swinging arms, standing still, taking normal steps, crawling on the floor, etc. Adjust sensor sensitivity and orientation as required.
  - (3) Check performance of tamperproof switches.
- h. *Verify operation of backup equipment.* Intrusion detection systems may have backup or redundant equipment such as power supplies or CPUs. This equipment should be placed in service by simulating conditions one might expect to cause a transfer.

Table 26-1. Electronic security

<b>Electronic Security</b>	
<i>Action</i>	<i>Frequency</i>
<p style="text-align: center;"><b>WARNING!</b></p> <p style="text-align: center;">MAINTENANCE PERSONNEL SHALL LOCKOUT/TAG EQUIPMENT TO ENSURE DE-ENERGIZATION DURING MAINTENANCE PROCEDURES.</p>	
Review maintenance records.	mo
Review operator records.	mo
Inspect electronic security equipment for the following.	
Inspect to ensure that voltage warning signs exist on equipment like power supplies.	yr
Ensure that security system warning signs, if installed, are in their proper location.	yr
ESS equipment may be labeled “security equipment not to be tampered with” to warn maintenance personnel. Make sure these labels are installed appropriately.	yr
Inspect enclosures for damage, unauthorized openings, and corrosion of metallic objects. Repair and paint as required.	yr
Inspect air passages and remove any blockage.	yr
Inspect, investigate, and solve conditions for unusual odors.	yr
Inspect locking devices. Repair as required.	yr
As equipment is operated and tested, listen, investigate, and solve conditions for unusual noises.	yr
Inspect equipment mounting for proper installation.	yr
Inspect for loose wiring and components.	yr
Inspect electrical connections for discoloration or corrosion. Repair as required.	yr
Inspect electrical insulation for discoloration and degradation. Repair as required.	yr
Inspect equipment grounding components such as conductors and connections. Repair as required.	yr
Clean equipment.	yr
Tighten electrical connections.	yr
Perform detection operational tests.	
Open protected doors.	mo
Walk in protected rooms.	mo
Test metal detectors by passing metal through the detection area.	mo
Prove operation of fence disturbance sensors by shaking the fence.	mo

Table 26-1. *Electronic security (continued)*

<b>Electronic Security</b>	
<i>Action</i>	<i>Frequency</i>
Walk in areas protected by invisible barrier detectors.	mo
Perform detection performance tests	
Check for correct alarm activation when protected doors are opened a specific distance. Make adjustments as required.	6 mos
Test motion sensors by walking in strategic locations. Adjust sensor sensitivity and orientation as required.	6 mos
Check performance of tamperproof switches.	6 mos
Verify operation of backup equipment.	6 mos